

Harvesting and Marketing Asian Carp: Opportunities and Obstacles



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“If meetings could kill invasive species, they’d all be dead by now!”

– unknown government biologist

Management Activities

- Public perception of “carp”
- Assistance in Market Development
 - Population estimates
 - Content analysis
 - Contaminant analysis
 - Product development
- Sustainable harvest vs. population management
 - Preferred Habitat (Stainbrook et. al., 2007)
 - Stock - Recruit Modeling (Hoff et. al., 2007)
 - MRBP’s “Commercial ANS Harvest” Guidelines

Public Perception

Would you really eat those?
That's the ugliest fish I've ever seen!



OR



Oliver Ready - Grafton IL, April 2006

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and it's supposed to start operating in May. Even half a barrier

Ready has tried Asian carp. "They wasn't that bad," he says. "If I didn't have anything to eat at all I'd be tickled to death to have that stuff."

will be more powerful than the temporary one, but it's not clear

day picking them out of your nets." He threw most of them

away but trucked some of them home, covered them with saw-

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Chicago Reader: April 21, 2006

- “In America the carp is looked at as trash fish,” says Mike Schafer. “But in Europe and Oriental countries it’s not looked at that way.”



Chicago Reader, April 21, 2006

[State Senator Mike] Jacobs has tried eating the carp and says it's "pretty good," similar to pollack, though he doesn't think people are going to be eager to eat something called Asian carp. He's lobbying to **rename it the Illini sole**. He's also championing the idea of selling the meat to Illinois prisons, pushing to get carp processors on the state's list of approved **vendors for food supplied to prisoners**. "I think they're an obvious market because they're a captive audience," he says.

Market Development

- Population Estimates
- Content Analysis
- Contaminant Analysis
- Product Development

Population estimate

IDNR estimate (2003)

- Carrying capacity estimate based on river acreage and published biomass of filter-feeding fishes.
- Between 13,851,000 and 24,597,000 kg (31 - 54 million lbs.)
- In some areas, Asian carp could comprise 95% of this total.



Population estimate

Acoustic Biomass Survey (2006)



- Illinois River and its backwaters contain a minimum of 5,425,000 kg (12 million lbs) of Asian carp 3-9 kg (7-20 lbs.) in size.
- 68.8% of these are bighead carp (*H. nobilis*)
- 31.0% are silver carp (*H. molitrix*)

Not based on visual identification!!!

Content Analysis

Asian carp are suitable source of protein for various products:

- human food
- animal feeds
- feed supplements
- fatty acid extraction

Study based on many factors:

- Dress-out weight
- Protein content
- Ash content
- Fats / oils / lipids



Contaminant Analysis

Rogowski et. al. (2005) examined 30 Asian carp for heavy metals and Organic pollutants:

- Concentrations of measured contaminants were relatively low in all fish sampled.
- None of the fish exceeded any advisory concentration for PCB or chlordane.
- Mean values for mercury fell well below the most conservative advisory concentration bracket.

Heavy metals

Heavy metals in muscle tissue of bighead and silver carps is much lower than canned tuna and other species of fish.

- Arsenic and selenium

Individual fish vary, but “pooled” fish are below Illinois advisory levels.

- Skin was removed.



Semi-volatile Organics

Most organic analytes in fish were below detection levels

All Asian carp had PCB levels lower than any Illinois advisory levels

Product and Market Development

Big River Fish Corp.

- Basic content analysis
- Accept commercial catch seasonally
- Smoked, dressed fish for ethnic markets

Carp Protein Products Ltd.

- Illinois River population and biomass surveys
- Proposed facility for protein extraction for pharmaceuticals
- High start-up cost, availability / sustainability ??

Schafer Fisheries

- Work with prison industries for boneless patties and others
- Potential to sell 10 million lbs. / year
- 100% usage (Zero Waste Stream)

Other Marketable Ideas

Canned Asian carp

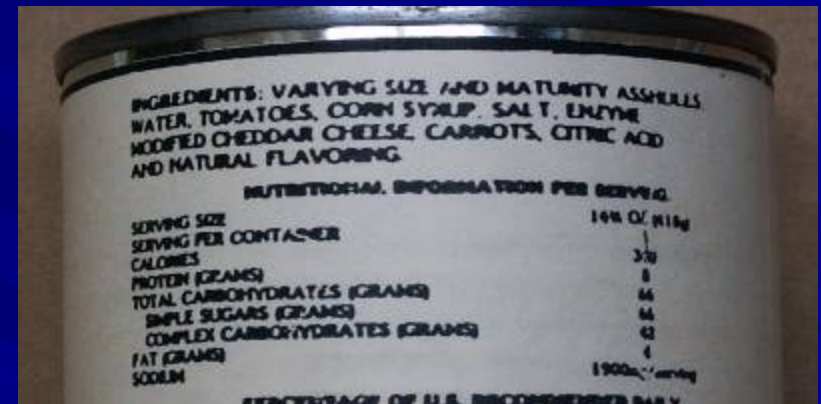
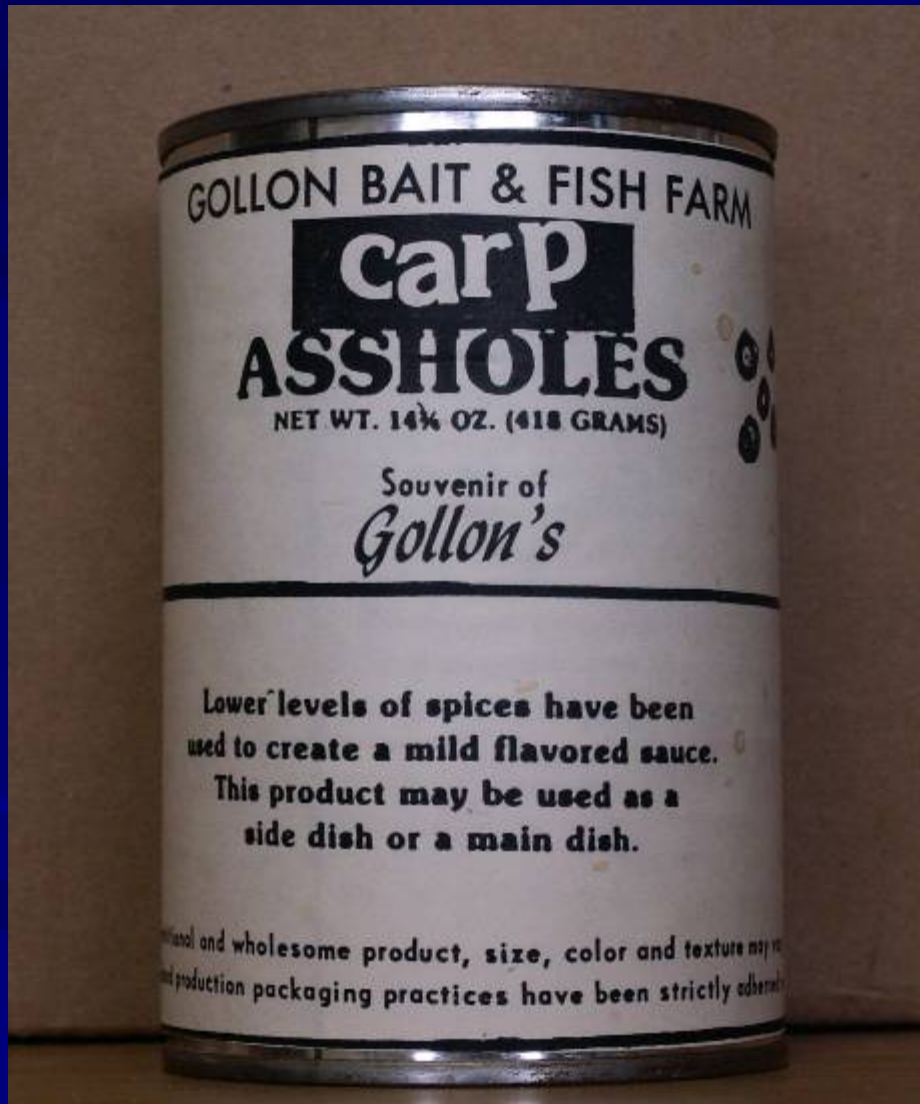


Oregon State University



An international buffet of new seafood-based delicacies made from fish that no one else wanted.

Questionable Strategies



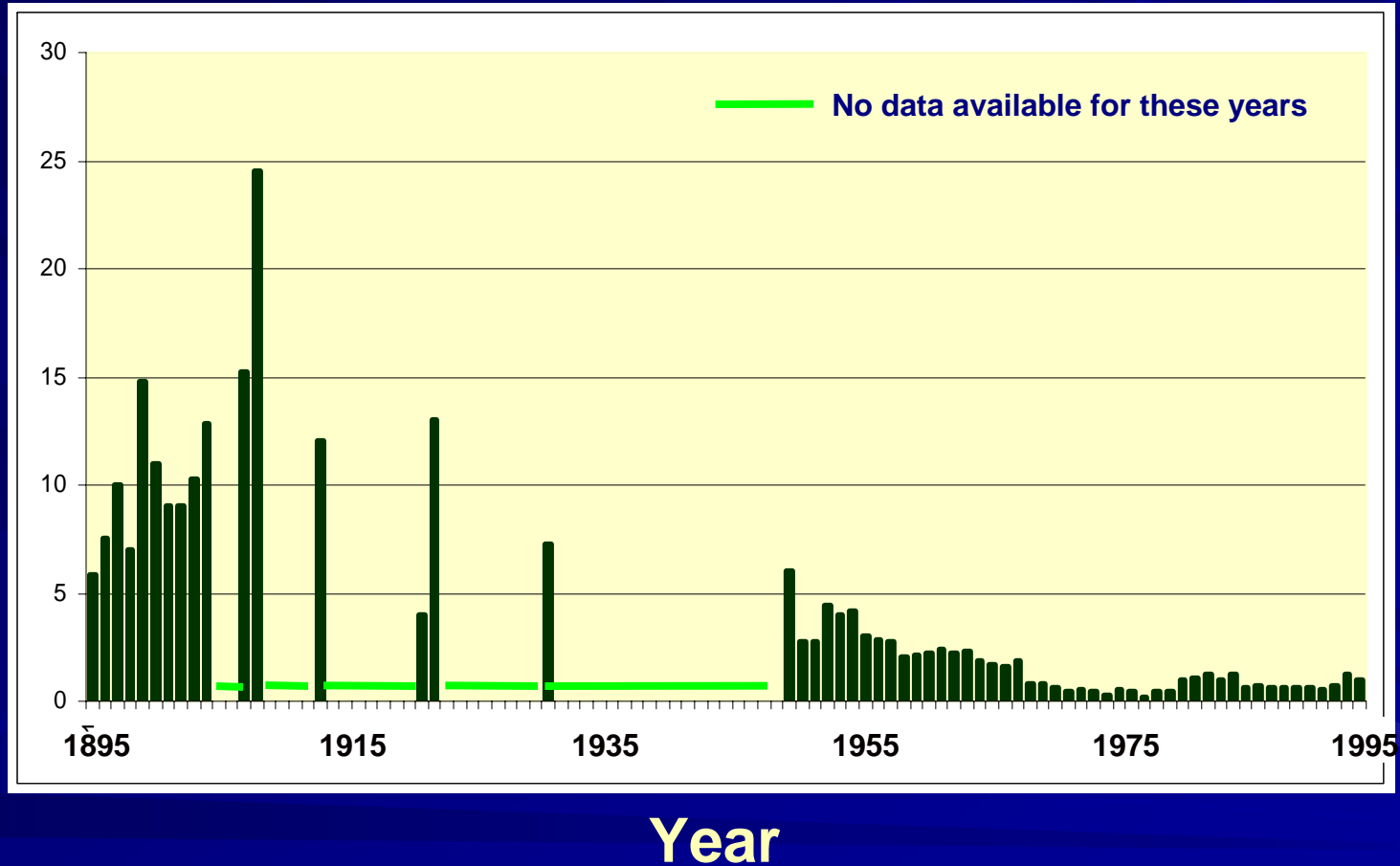
Gift Idea for your favorite in-laws?

Sustainable Harvest vs. Population Management

- Preferred Habitat Mapping
- Stock-Recruit Modeling
- Mississippi River Basin Panel
“Commercial ANS Harvest” guidelines

Commercial Fish Catch -- Illinois River

Millions of Pounds



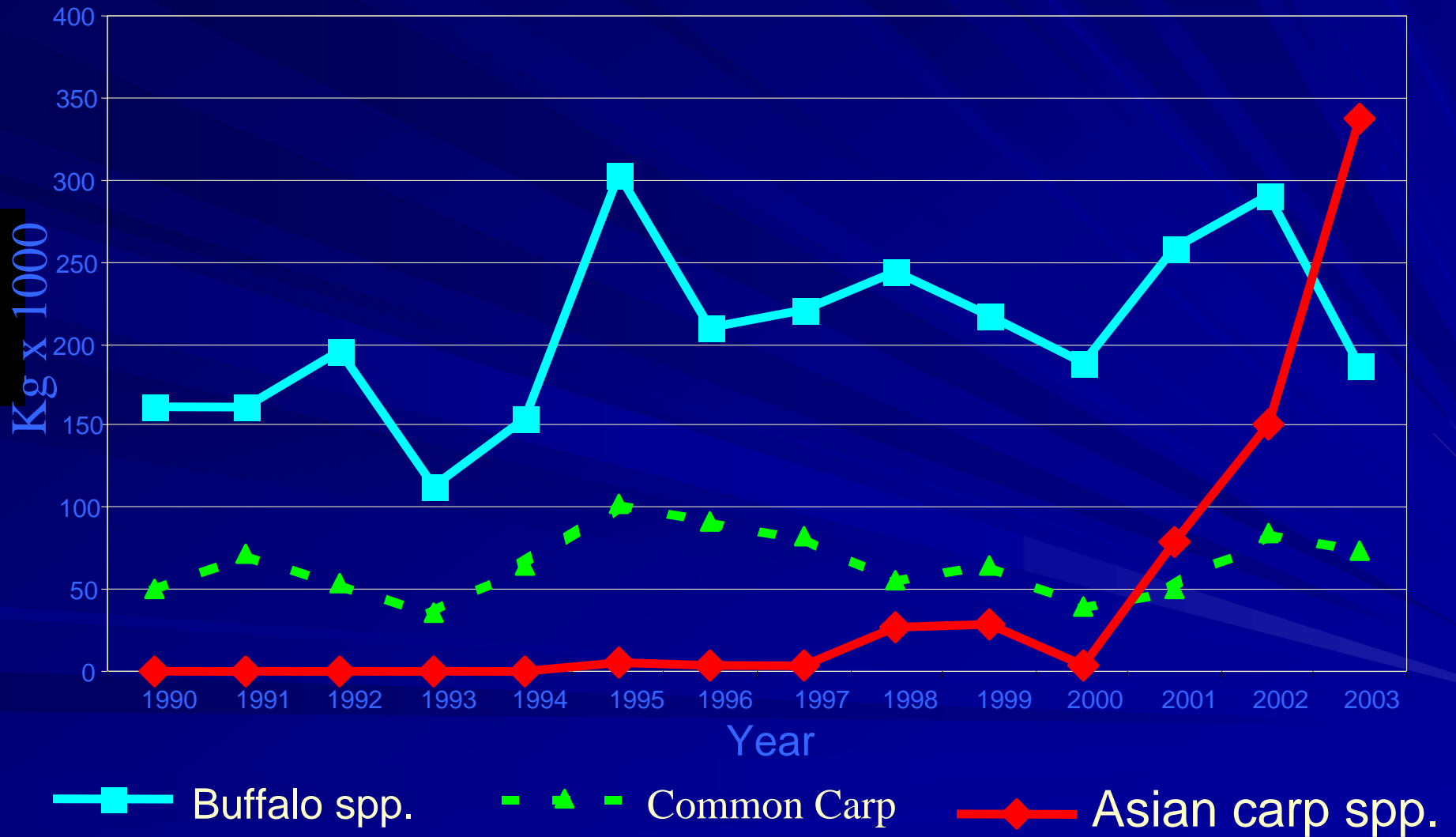
In the 1890s-1910, a 200-mile reach of the river produced 10 % of the total U.S. catch of freshwater fish -- more than any other river in America.

Illinois' Rivers Economic Value

Economic impact of fishing and boating on Illinois' large rivers = \$1,200,000,000. (1998 data provided by IDNR)

- Reduced catch of traditional commercial species.
- Reduced participation in recreational boating.
- Reduced participation in professional and recreational angling.
- Increase in unique or novelty events (“Redneck Fish Tournament”)

Commercial Harvest for the Illinois River 1990-2003



Data provided by Rob Maher (IDNR) *2003 data preliminary

Preferred Habitat – Middle Illinois River

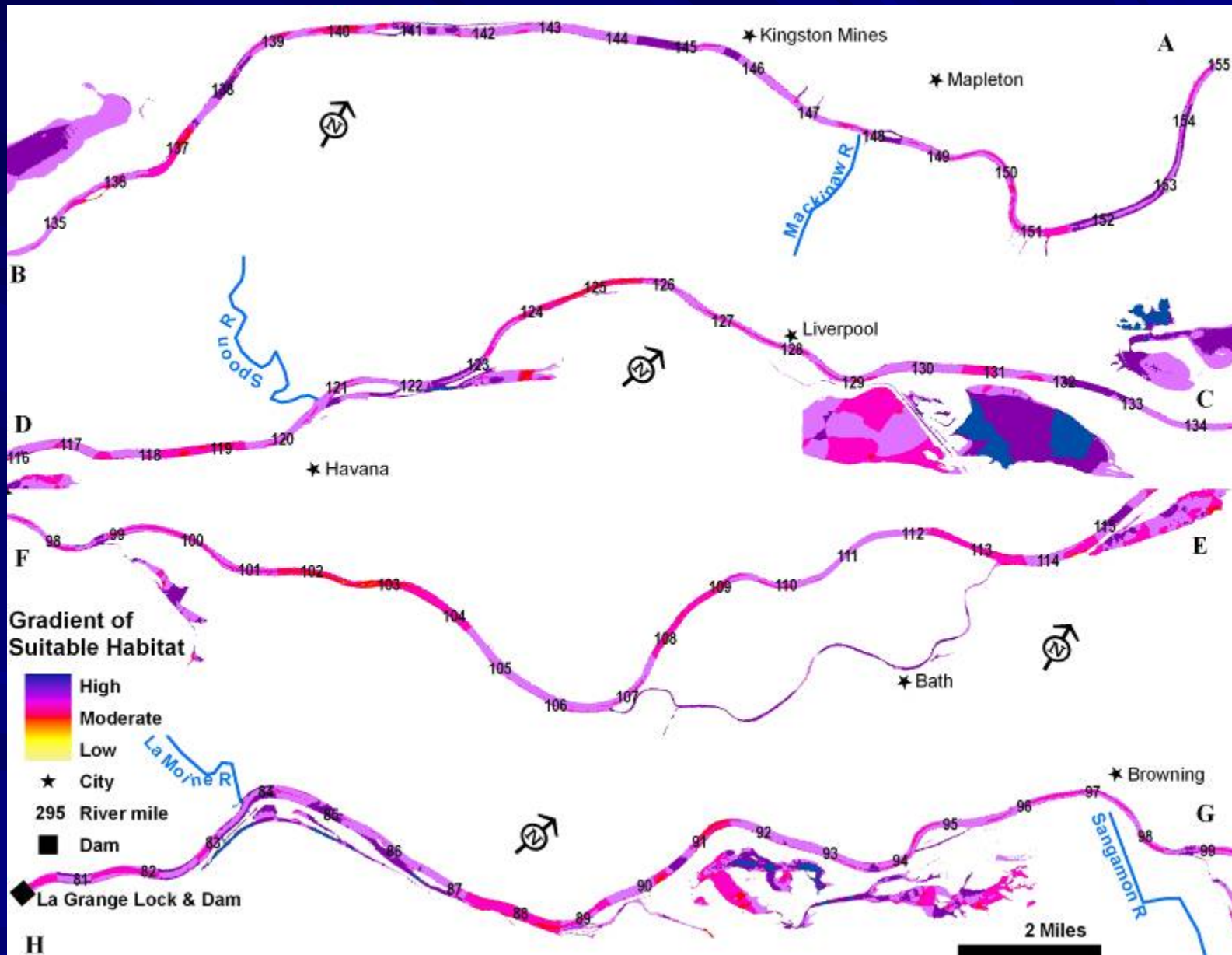
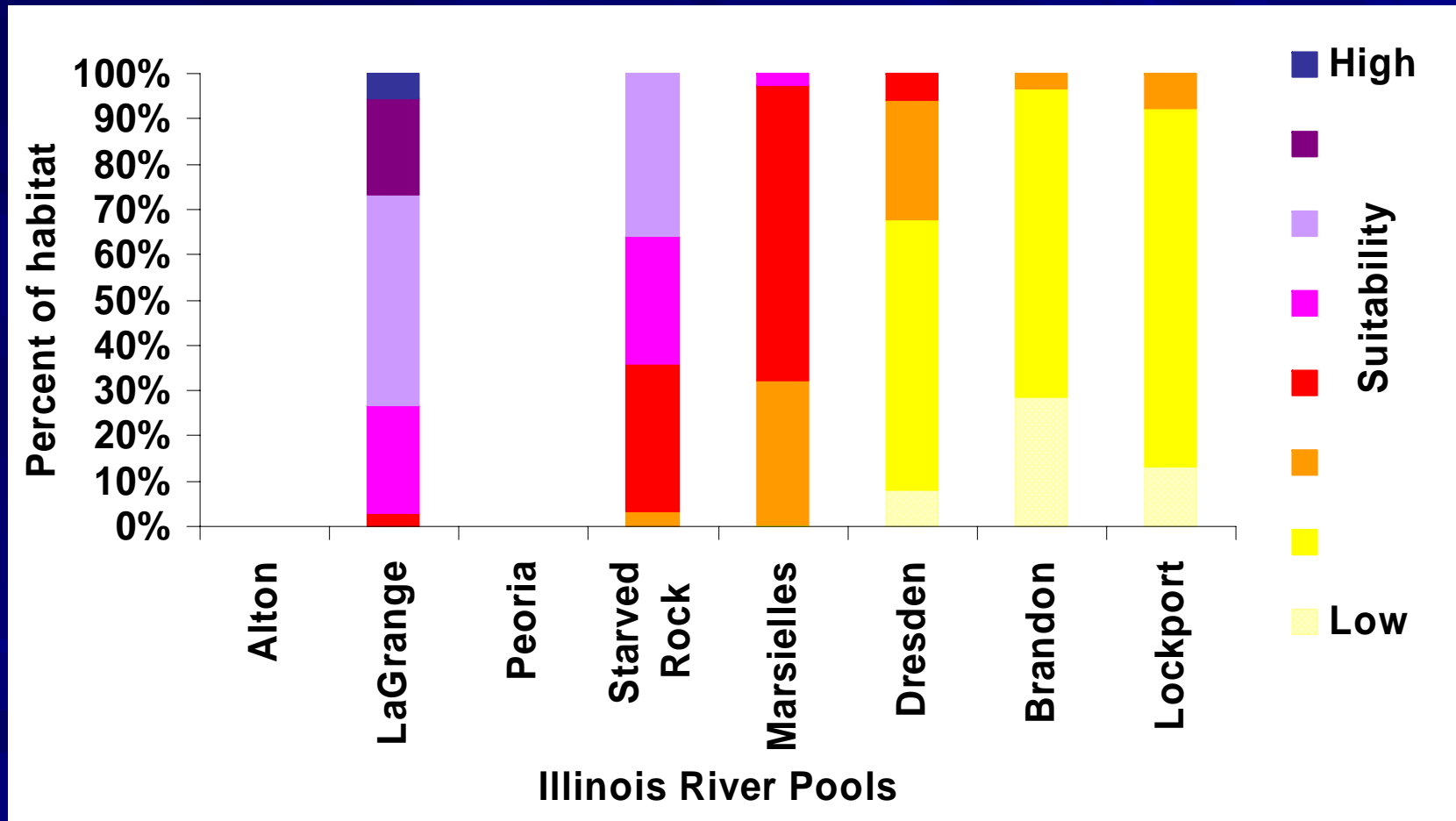
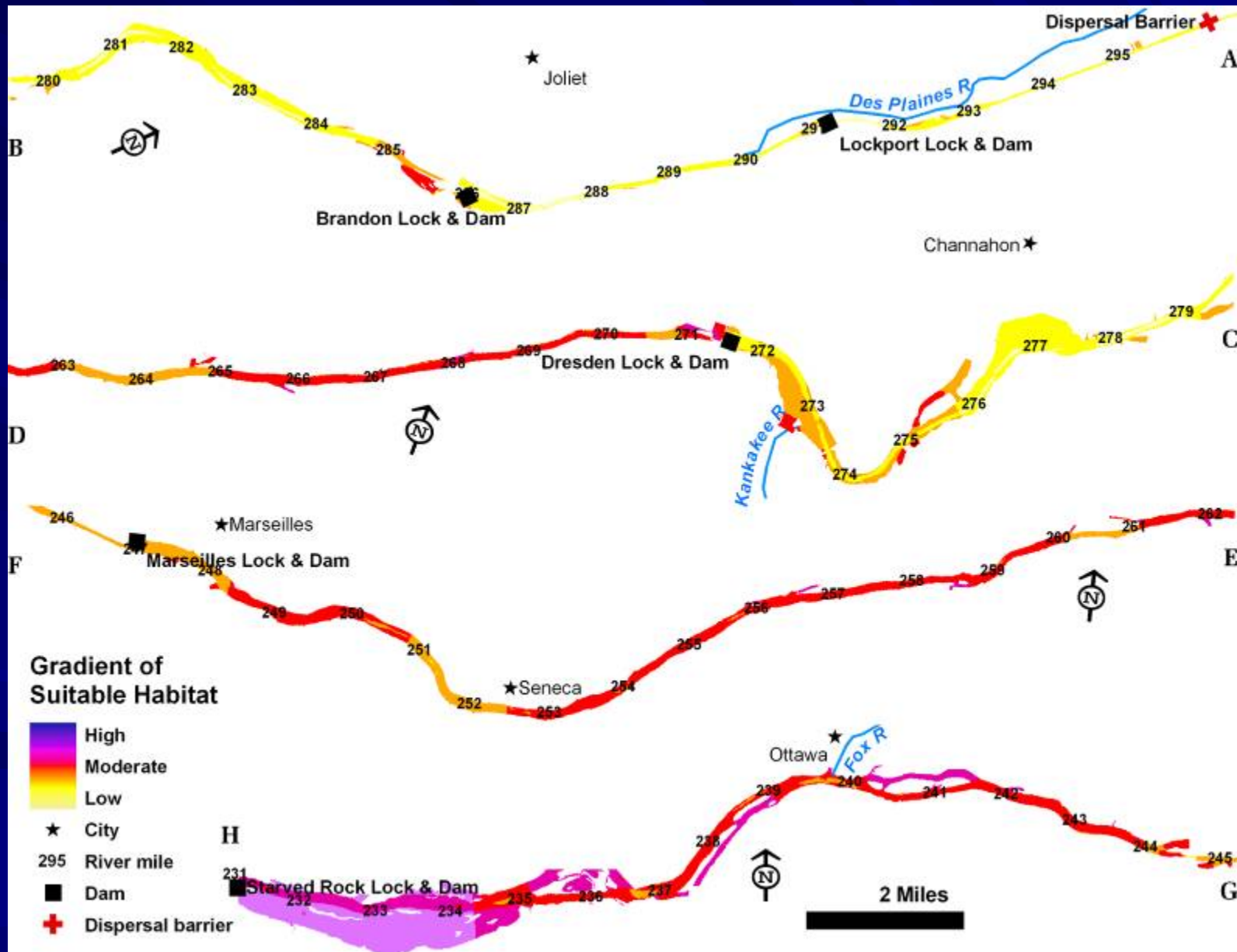


Figure 21. Summary of Illinois Waterway habitat suitability within our study reach and the La Grange Pool.

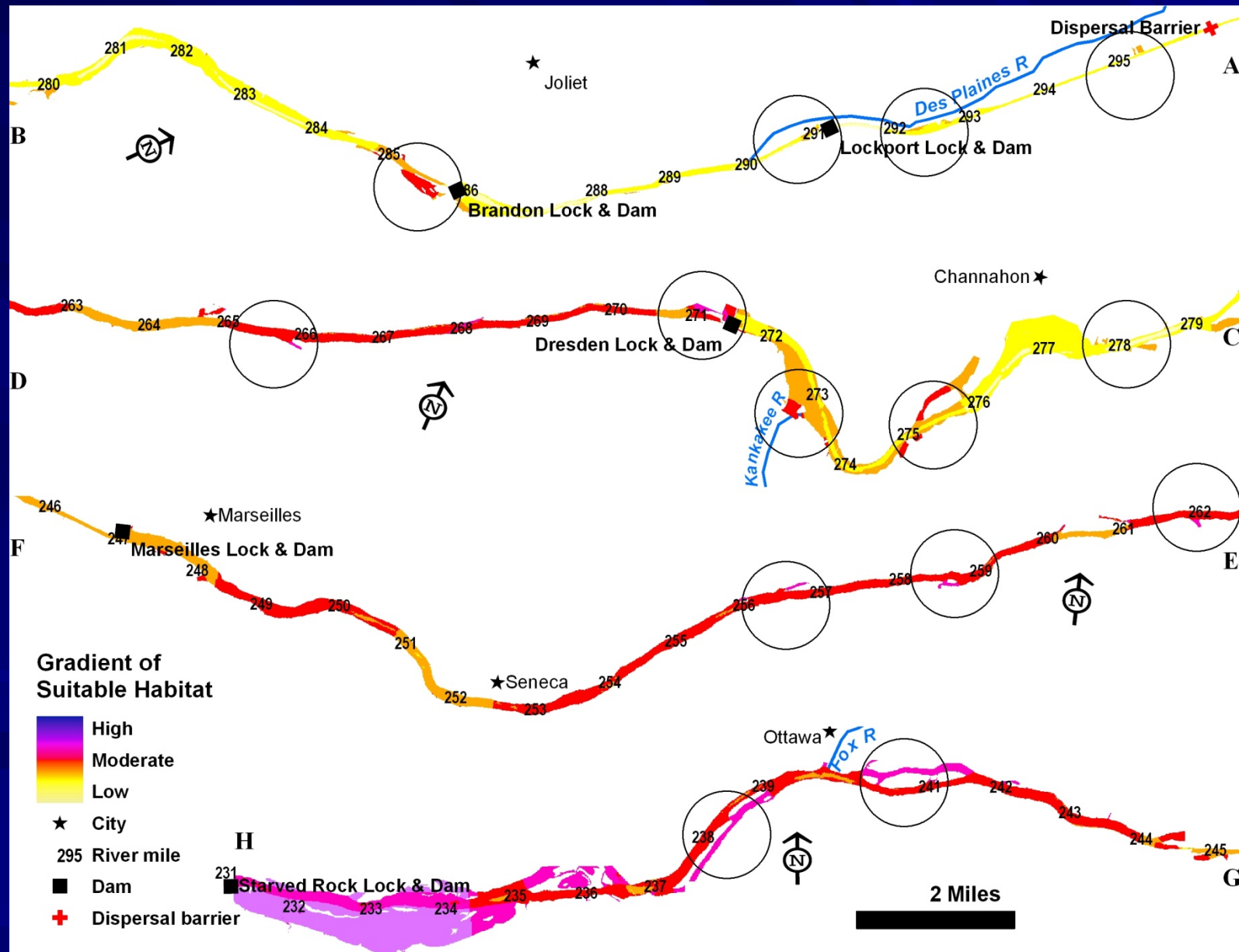


Preferred Habitat – Upper Illinois River



Preferred Habitat – Upper Illinois River

(areas Asian carp would mostly occupy circled)



Stock-Recruit Models

Developed to help sustain and enhance populations of preferred species

Can also be used to help control populations of invasive species

Stock-Recruit Models

These models help determine an Optimum Stock Abundance

Minimum # of individuals required for successful recruitment



Influencing factors

- Stock abundance can be influenced through abiotic variables
 - Water discharge
 - affects flow
 - modifies habitat availability



Other Influencing factors

- Stock abundance can be controlled through biotic variables
 - Increase # of predators
 - Decrease # of spawning individuals (HARVEST)



Bighead Carp Study Areas

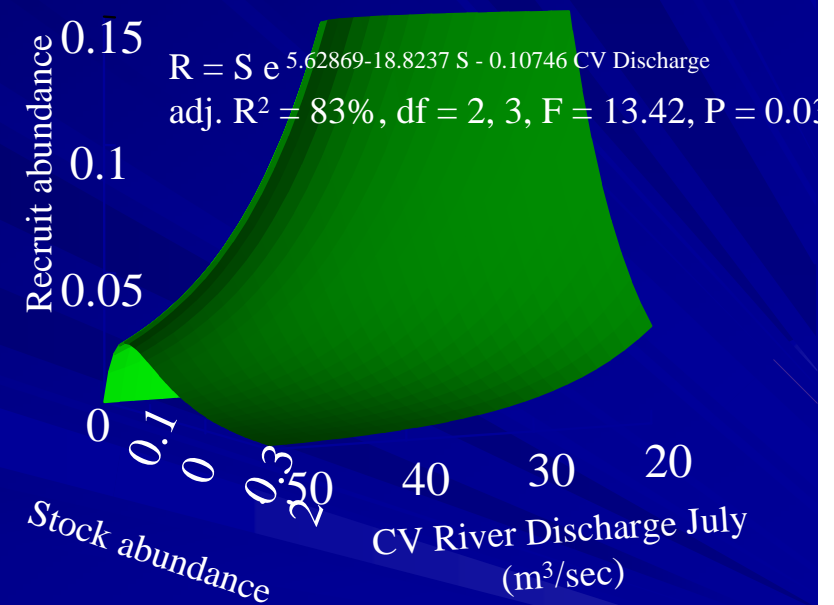
Illinois Natural History Survey

Bighead carp



Model Results

- The models explained 83% of the recruitment variability
 - Stock size explained 72% of recruitment
 - River discharge explained 11% of recruitment



Management Implications

- Most (approaching 83%) bighead carp recruitment variation in these areas can be affected by management
 - Controlling bighead carp stock size will reduce recruitment
 - Increasing river discharge variability during July should reduce bighead carp recruitment
- Controlling recruitment will limit adult abundance over the long term

Putting it all together



“Where you stand on an issue depends
entirely upon where you sit!”

– corollary to Murphy’s Law.

MRBP Commercial Harvest Guidelines

Silver Carp



Gizzard Shad



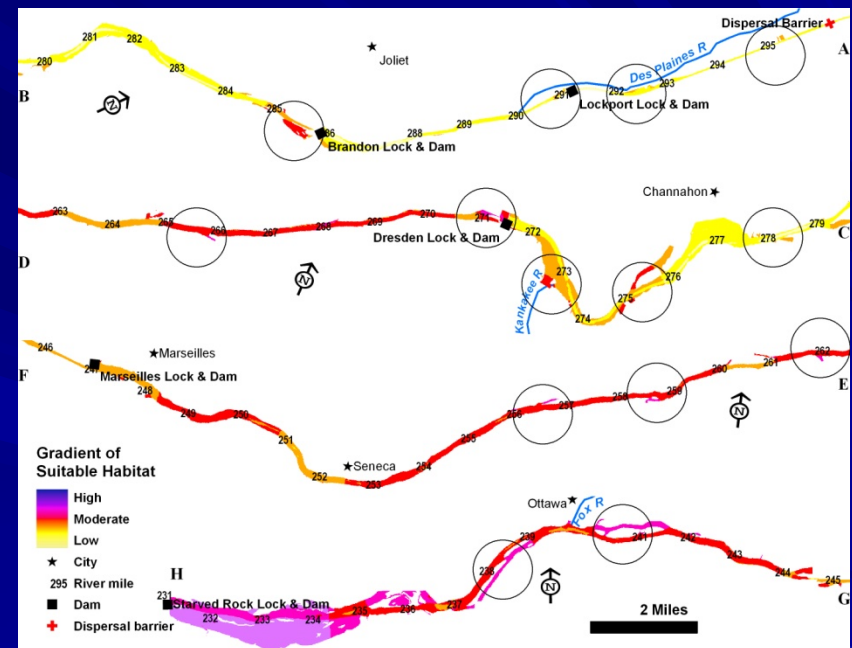
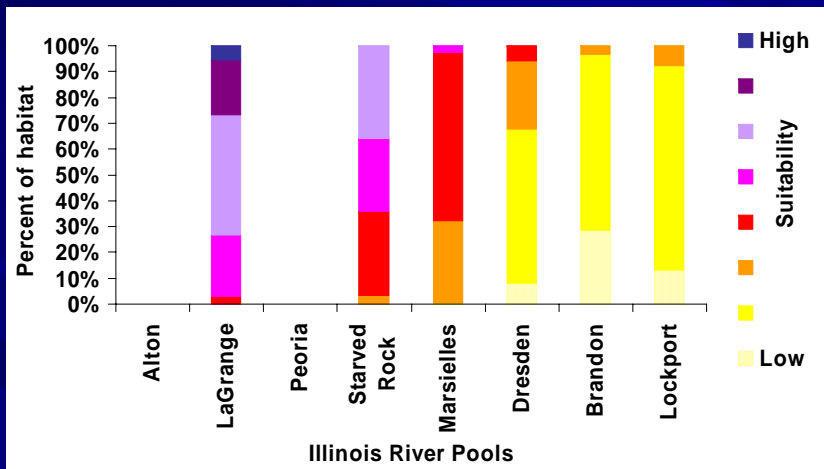
Bighead Carp



- Kill ANS immediately upon harvest.
- Identify ANS and label appropriately.

MRBP Commercial Harvest Guidelines

- Regulate harvest locations and seasons.



MRBP Commercial Harvest Guidelines

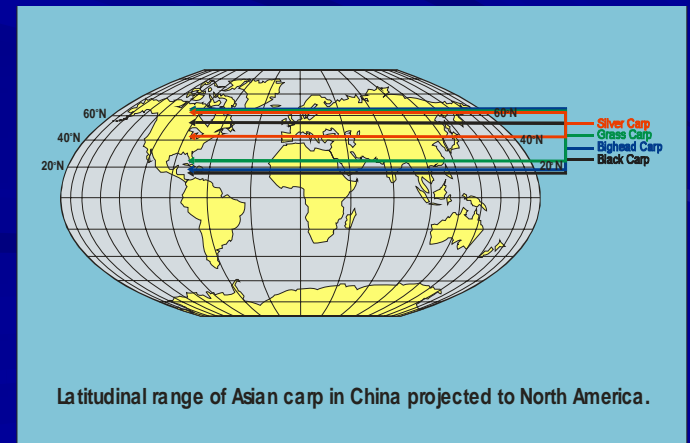


- Require cleaning and disinfection



MRBP Commercial Harvest Guidelines

- Openly communicate objectives
 - Concerns about over-capitalization
 - Have alternate source of raw materials
 - Availability of exit-strategies



End Goal

- Protect Critical Habitats
- Recover native species
- Reduce damage by invaders



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Questions ????

